



## THE ROLE OF ANTIBIOTICS IN CHILDHOOD DIARRHEA

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### Abstract

Acute diarrhoea is common illness in children. Diarrhea kills about four million people in developing countries each year. The development of oral therapy for the rehydration and maintenance of children with dehydrating diarrhea has become the worldwide mainstay of national diarrheal control programs. Antibiotics in management of diarrhoea though randomly used, are seldom indicated in children. This article mentions our experience in the treatment of acute diarrhoea in children without antibiotics.

**Keywords:** Acute diarrhoea, Antibiotics

### Introduction

Diarrhea refers to the passage of loose or watery stools, and occurs at some point in the life of nearly every child. Diarrhea is not a disease, but is a symptom of a number of illnesses. Though diarrhea is passage of liquid or watery stool more than three times a day, it is the recent change in the consistency of stools rather than the number of stools that is important<sup>1</sup>. Much of the morbidity is due to dehydration (which alters the child's natural balance of water and electrolytes) associated with acute watery diarrhea. Consequently, the proper management of children with acute diarrhea is important for all practitioners as well as for parents of small children. Thirty six years ago, oral rehydration therapy was first proven to be effective in the outpatient management of patients with severe dehydrating diarrhea caused by cholera. The development of this simple therapy for the treatment of diarrhea, one of the most common illnesses of humankind, was heralded as one of the great medical achievements of the 20th century. Oral therapy has now become the mainstay of the World Health Organization's efforts to decrease diarrhea morbidity and mortality, and Diarrheal Disease Control Programs have been established in more than 100 countries worldwide. Oral rehydration solution (ORS) is invention of the millennium, which has saved millions of children across the globe, especially in

developing world. Rotavirus is the most common cause of acute diarrhea among children, accounting for one-fourth of all cases. Since viral agents are the predominant cause of acute diarrhea, antimicrobial agents play only a limited role in case management<sup>2</sup>. Many diarrheal illnesses caused by viruses will improve in two or three days without antibiotics. In fact, antibiotics have no effect on viruses, and using an antibiotic to treat a virus infection could cause harm. Antibiotics are often not needed to treat mild bacterial infections. Inappropriate use of antibiotics may accelerate the development of drug resistance and adds to financial burden<sup>3</sup>. They must never use antidiarrheal drugs<sup>4</sup>.

Though there is widespread use of antibiotics for treatment of diarrhea, we at the department of antibiotics in diarrheal cases admitted in ward. Antibiotics are not started until specifically indicated in our set up. We would like to share our experience in treatment of diarrhea without antibiotics.

### Our experience

84 cases of acute gastroenteritis were admitted in past 16 months our unit. Indication for admission being moderate to severe dehydration, associated fever or bloody diarrhea. Age analysis is given in table number 1. Male to female ratio was 1.2:1 (46:38).

Table no: 1

| Age of the children | Number | percentage |
|---------------------|--------|------------|
| < 6months           | 12     | 14.24%     |
| 6 to 12 months      | 34     | 40.27%     |
| 1 to 3 years        | 06     | 7.14%      |
| >3years             | 02     | 2.34%      |

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Our protocol was to immediately start hydration therapy by ORS and if required intravenous fluids. Children were encouraged to continue their daily diet. Mothers of infants less than 6 months were advised to continue breast feeding. In age more than 6 months rice ganji, over ripe banana, mashed potato along with breast feeding was advised. In older children soft rice with curds and buttermilk was advised. Stool for routine microscopy, reducing substance and culture were sent. No antibiotics were started unless the child had pus cells and RBCs on 'stool microscopy, severe protein energy malnutrition, obvious blood and mucus diarrhea or associated systemic illness. Few children who had received antibiotics outside were made to stop antibiotics. Out of total 84 cases of acute gastroenteritis, 64 children improved without any antibiotics and mean duration of hospital stay was 48 to 72 hours. The indications in 20 children who received antibiotics were protein energy malnutrition (6), dysentery (7), encephalopathy due to hyponatremia (1) and associated systemic illness (2). 4 children did not respond to oral rehydration therapy after 72 hours of admission and developed fever for which antibiotics were administered. Children who required antibiotics, gentamycin or ciprofloxacin were given parenteral and supplemented with lactobacillus. Mean duration of hospital stay in children who received antibiotics was 96 hours to 120 hours. 5 children whose test for reducing substance in stool had shown green precipitate did not require discontinuation of breast milk. 76% children with acute gastroenteritis improved without antibiotics.

Correct case management of diarrhoea diseases is well defined now:

- Oral Rehydration Therapy (ORT) and continued feeding are sufficient in most episodes;
- Antimicrobial treatment is recommended in a small fraction of cases: dysentery, parasitic diseases, and severe cholera;
- "Antidiarrhoeal" drugs are never indicated. Their use can be dangerous <sup>5</sup>.

A study by Kassem et al to evaluate the effect of antibiotics on the duration and severity of diarrhea comprising of 500 children under 2 years of age with acute diarrhea suggests that, aside from cases of cholera, shigella dysentery, and giardiasis, antibiotics have no place in the treatment of diarrhea. Fluid therapy, alone is sufficient in the majority of cases. Mean duration of the diarrhea episodes and vomiting was lesser in children who received ORS than those who

received antibiotics <sup>6</sup>. Oral rehydration therapy and early realimentation have drastically reduced their mortality and morbidity. Beside oral or eventually IV rehydration therapy no medication has proven its efficacy <sup>7</sup>. Our observations were similar that children who received no antibiotics had a shorter stay and could successfully treat 76% of children without antibiotics. There was no incidence of lactose intolerance. Strategy for management include continuation breast feeding, stressing homemade weaning diet with good feeding and rearing practices including hygiene.

## Summary & Conclusion

Above experience is an eye opener and confirmatory to scientific concepts. Majority of infantile diarrhea are non bacterial origin and there is no role for antibiotics. Best way to manage diarrhea is adequate oral rehydration and dietic therapy. Certainly, every acute diarrhea patient should be evaluated carefully. Treatment should be tailored to the individual patient. Expert management recommendations are that the patient should not be treated with antibiotics unless there is a very strong reason to give them.

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